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ENGLISH TITLES

BIOLOGY

The African Paleotropical floristic categories links to the Flora of highland plains in Yemen

Hassan M. Ibrahim¹, Hana A. A. Saleh² and Abdul Nasser A. Al-Gifri²

¹ Biology Department, Faculty of Science, Sana'a University- Yemen

²Biology Department, Faculty of Education, University of Aden- Yemen

Abstract

About 222 plant species (two Ferns, one Gymnosperm, 219 Angiosperms: 169 Dicotyledons and 50 Monocotyledons) from the total 249 species were recorded from the Highland plains in Yemen, showing a distribution relationship with three African paleotropical floristic regions and 10 African paleotropical floristic elements. The distribution relationship among the African paleotropical floristic elements was subjected to numerical analysis: the African paleotropical floristic region with the highest number of species is Sudano-Zambeziyan, with 207 (83.1 %) species; while the African paleotropical floristic element, with the highest number of species, is the Afro-Montane Archipelago-Like Regional Centre of Endemism, with 184 (73.9 %) species.

Key words: African floristic elements, paleotropical, highland plains, Yemen, numerical analysis.

MATHEMATIC

On certain Konhauser and Laguerre matrix polynomials

Mubarak A. Alqufail

Department of Mathematics, Faculty of Education, Aden University, Aden, Yemen

Abstract

In this paper, we generalize the well-known Laguerre and Konhauser matrix polynomials, given by [MMN 17(1) (2016) 605-633], [AC 100 (2011) 193-204] respectively,

and we also introduced a set of new Laguerre matrix polynomials $L_n^{(B,C)}(\alpha, x)$, we also obtained some generating relations and integral representations for these sets of polynomials.

Key words: Laguerre and Konhauser matrix polynomials, generating relations and integral representations.

Generating Functions for Legendre Polynomials by using Group Theoretic Method

Gamal Ali Qashash

Department of Mathematics, Faculty of Science, Aden University, Yemen
gamalkashash@yahoo.com

Abstract

In this paper we obtain generating functions for the Legendre polynomials $P_n(x)$ in its modified form by using Weisner's group theoretic method. Whereas, we deployed it to determine the new generating relations between the generalized Legendre polynomials and with easy way. The ideas in consent with proofs are originated from the book of McBride [8] and is used to determine new generating relations which involve modified Legendre polynomials.

Key words: Legendre polynomials, generating functions, differential operators & Group theoretic-method.

Some properties for Weyl's projective Curvature Tensor of Generalized W^h -Birecurrent in Finsler Space

Adel Mohammed Al-Qashbari

Dept.of Maths., Faculty of Educ. -Aden, Univ. of Aden, Khormaksar, Aden, Yemen
Adel_ma71@yahoo.com

Abstract

In this paper, we defined a Finsler space F_n for which Weyl's projective curvature tensor W_{jkh}^i satisfies the generalized-birecurrence condition with respect to Cartan's connection parameters Γ_{kh}^{*i} , given by the condition $W_{jkhilm}^i = \alpha_{lm}W_{jkh}^i + \beta_{lm}(\delta_h^i g_{jk} -$

$\delta_k^i g_{jh}$), where $l|lm$ is h-covariant derivative of second order (Cartan's second kind covariant differential operator) with respect to x^l and x^m , successively, α_{lm} and β_{lm} are non-null covariant vectors field and such space is called as a *generalized W^h -birecurrent space* and denoted briefly by GW^h-BRF_n . We have obtained the h-covariant derivative of the second order for Weyl's projective torsion tensor W_{kh}^i , Weyl's projective deviation tensor W_h^i and Weyl's projective curvature tensor W_{jkh}^i and some tensors are birecurrent in our space. We have obtained the necessary and sufficient condition for Cartan's third curvature tensor R_{jkh}^i , the associate curvature tensor R_{jpkh} to be generalized birecurrent, the necessary and sufficient condition of h-covariant derivative of second order for the h(v)-torsion tensor H_{kh}^i , the associate torsion tensor $H_{kp,h}$ and the deviation tensor H_h^i has been obtained in our space.

Key words: Finsler space, Generalized W^h - Birecurrent space, Weyl's projective curvature tensor W_{jkh}^i , Cartan's third curvature tensor R_{jkh}^i .

Exact solutions for a new models of nonlinear partial differential equations using $\left(\frac{G'}{G^2}\right)$ -Expansion method

E.S. Al-Amry and E. F. Abdullah

Department of Mathematics Faculty of Education Aden University Yemen

Abstract

In this paper, we present a new model of Kadomtsev–Petviashvili (KP) equation, the Kadomtsev–Petviashvili–equal width (KP-EW) equation and the Yu–Toda–Sassa–Fukuyama (YTSE) equation. We apply the $\left(\frac{G'}{G^2}\right)$ -expansion method to solve the new models. Exact travelling wave solutions are obtained and expressed in terms of hyperbolic functions, trigonometric functions, rational functions solutions of this equations from the method, with the aid of the software Maple.

Key words: Kadomtsev–Petviashvili (KP) equation, modified(KP) equation, Kadomtsev–Petviashvili–equal width (KP-EW) equation, modified(KP-EW) equation, Yu–Toda–Sassa–Fukuyama (YTSE) equation, modified (YTSE) equation, exact solutions, $\left(\frac{G'}{G^2}\right)$ -expansion method.

The Generalized Riccati Equation Mapping for Solving (cmZKB) and (pZK) Equations

M. S. Al-Amry and Mariam M. F. Al-Shaoosh

Department of Mathematics, Faculty of Education, Aden University, Aden Yemen.

Abstract

The generalized Riccati equation mapping is extended which is powerful and straight for word mathematical tool for solving nonlinear partial differential equations.

In this paper, we construct twenty-seven traveling wave solutions for Combined (1+3) Zakharov-Kuznetsov-burgers equation(cmZKB) and potential (1+3) Zakharov-Kuznetsov Equation (Pzk)by applying this method. In this method, $Q' = l + nQ + mQ^2$ is used, as the auxiliary equation, called the generalized Riccati equation, where l , m and n are arbitrary constants. Further, the solutions are expressed in terms of the hyperbolic function, the trigonometric function and elliptic function.

Key words: The generalized Riccati equation, Combined the (1+3) Zakharov-Kuznetsov-burgers equation, Nonlinear partial differential equations.

MEDICINE

Effect of therapeutic dose of Topiramate on placenta albino rat

Muna A. Kutb,* and Huda A.M **

*Department of Morphology, Histology Unit, Faculty of Medicine and Health Sciences, Aden University, Yemen

** Department of Forensic Medicine and Toxicology, Faculty of Medicine and Health Sciences, Aden University, Yemen

Abstract

The aim of this study is to elucidate the effects of the therapeutic doses of topiramate on the placental structure of albino rats (one of the antiepileptic drugs). This study was conducted over a period of 6 months extending from October 1, 2011 to February 1, 2012. Thirty adult non pregnant female albino rats and 15 male ones of the same strains, weighing 150-200 grams, were purchased from the Animal House of the Faculty of Medicine, Assiut University, Egypt.

Thirty pregnant rats were used in this study and were classified in three groups: a) Control Group: consisted of 10 pregnant females with normal saline administration, b) Group one: consisted of 10 pregnant females with therapeutic dose of topiramate oral administration of 50mg /Kg body weight (Study Group I), and (c) Group two: consisted of 10 pregnant females

with therapeutic dose of topiramate oral administration of 100mg /Kg body weight (Study Group II).The oral administration was done daily, from day one of pregnancy, for nineteen days of gestation.

Light microscopic examination, using Hematoxylin and Eosin (H&E) This study revealed that sections which were obtained from the study groups I & II showed multiple lesions that include decidual cells degeneration, hyaline deposition, particularly in decidual site, labyrinth zone and fetal blood vessels, Trophoblastic giant cells and spongiotrophoblasts had cytoplasmic vacuoles, presumably phagosomes, and pyknotic nucleus, the labyrinth layer of group I & II showed distortion of their plate-like architecture, deposition of more fibrinoid material and perivascular fibrosis and extensive areas of congestion and hemorrhagic in all placental layers. Therefore, topiramate induced dose independent structural changes in the placenta. So, it should be used with caution during pregnancy.

Key words: Topiramate, placenta, Histopathological changes.

Glycemic control among patients with Type 2 diabetes mellitus: in relation to medication adherence and life style

Huda A. M * and Sarah A. M **

* Department of Forensic Medicine and Toxicology, Faculty of Medicine and Health sciences, Aden University, Yemen

** Department of Clinical pharmacy, Faculty of Pharmacy, Aden University, Yemen

Abstract

Type 2 diabetes mellitus (DM) is a chronic metabolic disorder in which prevalence has been increasing steadily all over the world. Lifestyle management is a fundamental aspect of diabetes care and it includes nutrition, physical activity, smoking cessation, and psychosocial care. Good glycaemic control among type 2 diabetes mellitus patients involves interplay of self-management measures including physical activity and diet, in addition to medication adherence. One of the major contributing factors is poor medication adherence in type 2 diabetes mellitus which is well documented to be very common and is associated with inadequate glycemic control; increased morbidity and mortality; and increased costs of outpatient care, emergency room visits, hospitalization, and managing complications of diabetes.

Observational cross sectional study, conducted at different major health care facilities in northern Jordan, recruited more than 300 adult patients who had been on the same antidiabetic treatment regimen for a minimum of 3 months. Patients' data, physical measurements, medications and disease history, dietary carbohydrates and lipids intake data were obtained using pre-validated questionnaires. Fasting blood samples were collected and assessed for HbA1c.

A total of 300 type2 diabetes mellitus patients were enrolled in this study, 63.7% of them were females and 36.3 % were males. The average age of patients was 60.1 years. About 52

(17.3%) of them were smokers, most of them were males (30%). Medication adherence showed that more than two-thirds (69.4%) of the study samples were highly adherent to their medication. Medication adherence was associated significantly with HbA1c level. Only 41.4% of the patients had diet counseling and 58.6% followed a diet plan, both of them were none significantly associated with HbA1c level.

Glycemic control in type2 diabetes mellitus is not just a matter of proper medications use and dosages, but other factors may contribute to poor glycemic control.

Key words: Glycemic control, HbA1c, medication adherence, type 2diabetes mellitus.

Toxic effect of tobacco smoke and nicotine on the Mitral cells of the Rabbits

Rima G. H* and Huda A.M **

*Department of Morphology, Anatomy Unit, Faculty of Medicine, Aden University, Yemen

** Department of Paraclinic, Forensic Medicine and Toxicology Unit, Faculty of Medicine,
Aden University, Yemen

Abstract

Tobacco use creates a tremendous burden on the health care system and is the largest non-communicable source of disease globally. Olfactory bulb was the structure in the ventral surface of the brain which receives olfactory input data and also known to involve in the regulation of basic behaviors.

This study was carried on 75 domestic rabbits with a mean weight of 1500-2000gm from January 2011- August 2011 in Ain Shams university. These rabbits were divided into three groups as follow:

Group I: Included 25 rabbits that received fresh food and water.

Group II: Included 25 rabbits were injected subcutaneously with 1mg/kg body weight of nicotine in a single daily dose.

Group III: Included 25 rabbits that were exposed to two cigarettes smoke three times per day in a closed chamber.

There was a statistically significant difference between the groups as regards the mean longitudinal and transverse diameter of the mitral cells. Treated group III showed lowest mean of longitudinal and transverse diameter of mitral cell. Microscopical examinations showed that there are disruption in the mitral layer and degeneration and disappear of mitral cells in some areas and vacuolated cells in the others, particularly in group III.

It was concluded that nicotine exposure and passive cigarette smoking caused reductions in the longitudinal and transverse diameter of mitral cells of the rabbits as well as several histopathological changes, which lead to loss of smell sensation and change in the behavior.

Key words: Nicotine, Smoke, mitral cells, Tobacco.

PHYSICS

Quantum mechanical investigation of iron nanoparticle and its nanocomposites

Tawfik Mahmood Mohammed

Physics Department, Faculty of Education, University of Aden

Abstract

In this work, the theoretical visual models were constructed for iron nanoparticle and its nanocomposites. These models have been investigated by Hartree-Fock-Roothaan (HFR) method. Molecular orbitals are represented as blend in a linear combination of atomic orbitals of the atoms of the iron nanoparticle and its nanocomposites. It has been used as atomic orbitals whoever ; atomic iron orbitals Fe : $1s$ -, $2s$ -, $2p_x$ -, $2p_y$ -, $2p_z$ -, $3s$ -, $3p_x$ -, $3p_y$ -, $3p_z$ -, $3d_x^2$ -, $3d_y^2$ -, $3d_z^2$ -, $3d_{xy}$ -, $3d_{xz}$ -, $3d_{yz}$ -, $4s$ -, $4p_x$ -, $4p_y$ -, $4p_z$ - and, $1s$ -, $2s$ -, $2p_x$ -, $2p_y$ -, $2p_z$ - are atomic orbitals of Carboon (C) and floure (F), also $1s$ - atomic orbitals of Hydrogen (H).

Besides, Gaussian functions have been used as atomic orbitals. The numerical values of unknown coefficients of the linear combination have been found from the solution of HFR equations. As a result of this calculations, the values of orbital energies, ionization potential, and the total electronic energy of iron nanoparticle and its nanocomposites have been determined . The calculations show that iron nanoparticle and polyvinilidenfloride + iron₈ (PVDF+Fe₈) nanocomposite are tough, electrophile, and stable dielectric, and polypropylene + iron₈(PP+Fe₈)is tough, nucleophile, and stable semi-conductive material. The effective charge of atoms have been calculated and molecular diagrams of iron nanoparticles and its nanocomposites have been constructed.

Key words: nanotechnology, quantum-mechanical calculation, computer models Hartree – Fock – Roothaanmethod .

ARABIC TITLES

AGRICULTURE SCIENCES

The effect of seed treatment and seed size in germination ratio and growth properties of Zea mays

Ghassan Abdulwahid Obad

University of Aden -Faculty of Education/Saber -Biology Department

Abstract

The weakness of germination is one of the problems facing Zea mays. It also seems to be a major reason for the low productivity of the crop from feed and grains. The size of the seed was the most important factor influencing the evidence. The present study was

conducted to determine the effect of seed sizes and activation factors on the germination and growth of zee mays. To perform this study, three sizes of large, medium and small seeds and different activating factors were selected. To conduct this experiment, three ways were used: seeds soaked in distilled water for 8 hours, seeds sown in distilled water for 10 hours and seeds dipped in warm water for 20 seconds at 70°C. The results of this study revealed that the primed seed soaked KCL at 4% concentration for 12 hours in a volume, of 1 liter achieved the highest germination rate (96.1%) with a root length of (12.2 mm), feather length of (13.3 mg) and dry weight of seedlings of (13.4 mg), whereas in the treatment of small non-treated seeds, the mean score was (69.8%), (6.5 mm), (8.3 mm) and (9.8 mg)

Key words: Seed Size, Percentage of Germination, Activation factors, Zea mays.

A survey study of Mites types in different climatic zones, its families, distribution and harms in the Republic of Yemen

M. S. Ba-Hassan¹ and Abdul Qader Mohammed Bin Osman²

¹Department of Plant Protection, Nasir's Faculty of Agric, Univ. of Aden

²Code Station for Agricultural Research

E: mahdibhasan@gmail.com&m_seed2020@yahoo.com

Abstract

This study was conducted at the Faculty of Agriculture, University of Aden, from January 2016 to December 2017. The study showed that the number of mites collected from the survey areas was sixty-nine (69), of which 32 were recorded previously, and thirty seven are found after the first registration. It was possible to define allover Yemen, thirty (30) types of mites were defined, whereas seven (7) types were put under the study classification. It was found that all types of mites belong to the 15 families regarding classification, all they were divided, according to the way they were fed into: Phytophagous types of plant species 36 belong to five families, while four species belong to two of the two multi-feeding families (Phytophagous and Predacious). 28 types belong to eight needy families (Predacious). This study aims at finding out the spread of the mite types on the various climatic zones, in addition to knowing their damages and dependencies, where samples of various plant parts were collected in perforated nylon bags. Species are spread in all areas of the study such as *E.orientalis*, *T.urticae*, *T.cirnabarinus* Citrus, papaye, grapes, pumpkins, eggplants and cotton, where some species, such as *E.banksis*, *O.mangiferus*, *T.cucurnitacearym*, were

found only in coastal areas, *O.afrasiaticus* species on date palms and *E.melongenus*, which was observed roaming on eggplant leaves and daturainnaxia in semi-desert areas. The species *P.ulmi*, *B.californicus*, *C. pulcher* were spread only in the mountainous highlands on apples, peaches, quince, figs, grapes, apricots. *E.ficus*, *O.niloticus*, *C.vitis* affect grapes, olives and figs, respectively.

Key words: Pytophagousmites, Predictive, Yemen, Survey, New mites Types.

**Effect of some agricultural treatments on the productivity of potato crop
(*Solanumtuberosum* L. var. Baraka) and control of late blight
(*Phytophthorainfestans* Mont.)**

**Abdullah H . Al-hajj*¹ Ahmed A. Aljamali, Ahmed M. Eed, NajiEbrahim, Marwan
Manea, Mohammed B. Al-Mashhor and Khalid A. Al Hakimi**

*Department of Plant Production, Faculty of Agriculture andVeterinary Medicine, Ibb
University, Yemen.

¹Email:Abdullah_1963@yahoo.com

Abstract

Potatoes (*Solanumtuberosum* L.) play an important role in food security of many countries, thus it is considered as an important strategic commodity. Also, it is an overwrought crop to soil because of its gluttony to minerals absorption due to its bigness vegetative organs and the amount of tubers. The aim of this study is to determine the effect of potassium fertilizer (K₂O) of 0, 50, 100, 150 kg / ha and organic extract of 10 ml / L and spray with fungicidal agent (SAFEX-50% WP) on the potato yield var. Baraka. The experiment was carried out at the farm of the Faculty of Agriculture and Veterinary Medicine, Ibb University, in March 2016, as a factorial experiment with split-plot design in three replications. The results showed that potassium fertilization up to 100 kg / ha had a significant increase in all studied traits except for medium and small tubers, while the incidence of infection was the opposite where the same treatment recorded a significant decrease. Spraying with organic extract and fungicide resulted in a significant increase in plant production per gm, percentage of large tubers weight /ha, total productivity and the significant decrease in the other studied traits, compared to the control. The interaction between fertilization and spraying with organic extract and fungicide showed a significant effect on all the studied traits. The best treatment is the treatment with 100 kg potassium oxide /ha with organic spray. The study investigated the importance of potassium fertilization with spraying with organic extract at increasing of the productivity of the potato crop and meeting the plant needs of the nutrients as well as increasing the resistance of the plant to the fungal infection of the late Blight.

Key words: Potassium fertilization, fungicide, organic extract, late blight, potato.

CHEMISTRY

Detection of Cyproheptadine and some of the cortisol derivatives added to the Chinese herbs traded in pharmacies and traditional medicine shops – Aden governorate

Ahmed Thabet Ahmed¹, Yaqoob Abdulla Qasem², Matea Aidroas Thabet²

¹Chemistry Department, Faculty of Science, Aden University

²Chemistry Department, Faculty of Education, Aden University

Abstract

The aim of this study is to detect Cyproheptadine and some cortisol derivatives which have been confirmed in this study additional of these pharmaceutical compounds to the Chinese herbs that sold in pharmacies and drug stores in our country, which are used by many people as substances that increase appetite and increase fattening. Due to the lack of any previous studies in our country indicating whether these herbs have been cheated by any pharmaceutical material. In this study, there are four pharmacological substances, namely Cyproheptadine, Dexamethasone, Prednisone, and Betamethasone. A derivative of cortisols have been detected in these herbs using HPLC / UV instrument from the Waters brand of US was used to detect Cyproheptide and certain cortisone derivatives in Chinese herbal preparations.

Key words: Cyproheptadine, Dexamethasone, Prednisone, Betamethasone, Chinese herbal

ENVIRONMENT

Ethnobotanic study of wild plants in Al-Dhala city and villages around, Dhala Governorate, Yemen

Ahmed Mohammed Moqubel

Department of Biology, Faculty of Education, Al-Dhala, Aden University Yemen

Abstract

The study area is located on the south western high lands of Yemen. It is around 245 km south of the capital Sana'a and has a very temperate (atmosphere; climate) and very beautiful Geomorphology nature which contains many plant species. The study was done by using structured questionnaires and interviews with people. The data were recorded by tape recorder after analyzing the study results, it appeared that the people benefit a lot from the wild plants because they are using the majority of the District flora. This study was conducted

during the period of July 2016 to February 2017 in the city of Dhala and some of its neighboring villages in the Governorate of Dhala.

About 104 plants belonging to 75 genera were identified and 43 family used for different purposes. 69% of the plants were used in the medical treatment, 7% were used in construction, and 24% were used in other different uses.

Key words: Al-Dhala, traditional, plant family, Ethnobotany.

The vegetation of coastal area from Shouheer to ALreedh, Hadhramout Governorate - Yemen

Khaled S. Bawahadi¹, Salah A. benf Fraijan² and Abdulkarim S.Ali³

¹Environmental Sciences Faculty of environmental Science and Marine Biology Hadramout University – Yemen

²Department of Environmental Science, Faculty of Science and Technology Neelain University-Sudan

³Department of Environmental Science, Faculty of Science and Technology, Neelain University-Sudan

Abstract

Survey was conducted along the coast dividing it into several segments and a distance estimated at 140.99 km from region to region where Sheher Reedah district is the study area characterized with solid earth nature, dry weather and therefore the vegetation in the study area is weak and most of plant species is saline, 83 vegetable types have been identified as belonging to 78 genus and comprise 63 species. The results showed that vegetation more prevalent species *Aervajavanica* The highest prevalence was found in Poaceae (33.3%) and (12) species the first sector was the Ophthalmologic Area 49 O18.751 E - 14O46 N74 to the Daisa 49 area O27.081 E - 14O50.260 N at a distance of 21.46 km is the first place in terms of the quantity of plant presence and total species and frequency, density and relative abundance

Key words: dry climate, vegetation, solid earth, frequency, proliferation, density.

Assessment of heavy metals pollution in soft tissue of some Bivalves at Aden coasts- Yemen

Arafat Thabit Amer^{1*}, Abdul-hakim M. Al-Alawi², Fatma Shdeewah³, Abdul Rahman bin Yahya³ and N. Al-Shwafi³

^{1,2}Biology Department -Faculty of Education- Radfan, University of Aden, Yemen

³Department of Biology, Faculty of Science, Sana'a University, Yemen

³Department of Pharmachemistry, Faculty of Pharmacy, University of Aden, Yemen

³Department of Earth & Environmental Sciences, Faculty of Science, Sana'a University, Yemen

*E-mail:arafatamer@gmail.com

Abstract

The coast of Aden is one of the most important Yemeni coasts in catching and exporting fish, molluscs and other marine products to the governorates of the Republic. Accordingly, pollution of these coasts and their consequent negative impact directly or indirectly on aquatic life and the marine environment will be reflected on humans feeding on organisms contaminated with heavy metals or across the food chain. Four sites in Aden coasts, Saira Island, Laborers Island, Al-Hiswah, and Fuqum, known for catching fish and molluscs, were selected to take samples. The samples collected, during winter and summer, were *Perna perna*, *Barbatia decussata*, *Saccostrea cucullata*. The average concentration of the two seasons was taken. The results showed that the concentrations ranges of heavy metals were: Cd 0.98- 11.05, Cr 2.9 - 18.05, Cu 10.7 - 296.05, Fe 106.75 - 688.55, Mn 6.19 - 30.11, Zn 78.7 - 741.5 µg/g. When comparing the concentration of heavy metals in molluscs with WHO Standards, the concentration of cadmium, iron, manganese, zinc were higher than the permissible limit. Heavy metals were arranged according to the value of concentration accumulation as: Fe > Zn > Cu > Mn > Cr > Cd, whereas they were arranged according to the percentage of accumulation as: Zn > Cu > Cd > Cr > Fe > Mn.

Key words: Heavy metals, Bioaccumulation, Bivalves, Aden coasts

An environmental study on Bee forage plants in Maddar and Shohouh valleys in Hadhramout

Salem Saeed Bacwud¹, Mohammed Saeed Khanbash² and Salem Mohammed bin Salman²

¹Honeybee Center, Seiyun University

²Faculty of Science, Hadhramout University

Abstract

Bee forage plants are the basic sector of successful bee projects because they possess a verified range of species whose flowers contain nectar and pollen grains used in bee feeding.

The study is conducted at Valley Maddar and Valley Shohouh in the Valley of Hadhramout. The objectives of the study are to compare bee plant species scattered in the two valleys, to find out the kinds of bee feeding along with the plant quantity measurements of the most important plants, and to find out the reasons behind the rangelands environmental degradation. The survey of plants was carried out in February and March 2017, using systematic sampling plots collection.

Results indicated that wild range plants reached 78.5% in Valley Shohouh, compared to 71.4% in Valley Maddar. The range plants in well irrigational areas was found to be 21.4% in Valley Maddar and 14.3 in Valley Shohouh, while equal range plants percentage reached up to 7.2% found in flood plains at the two Valleys. The results also indicated that 87.5% of plants are visited by bees for nectar and pollen grains and 12.5% of are visited for nectar at the two Valleys.

The findings revealed that the highest plant degradation and desertification in the sampling plots of the two Valleys are attributed to many reasons. The reasons behind plant degradation and desertification in Valley Maddar are: the general dryness (36.4%); overgrazing and insect diseases (18.2%); fuel wood collection, expanding buildings and climbing parasite (9.1%). The percentages of the contribution of the same reasons in the degradation and desertification in Valley Shohouh are: (23.5%) for fuel wood collection and expanding buildings; (17.6%) for general dryness; (11.8%) for overgrazing and insect diseases, and (5.9%) for soil erosion and overcutting.

Key words: Bee Forge plants, plant degradation, Hadhramout, wadiMaddar, wadiShohouh.

Water climatic balance in Taiz basin

Hasson A. Hanbala

Dept. of Geography, Faculty of Education, Aden

Abstract

The research deals the water climatic balance in the Taiz basin because these subjects have not been surveyed before except few. The researcher drew the climatic data from Ossifrah metrological station, in addition to using the equations to count water climatic balance, e.g.:Ivanov equation to count the total evaporation and Thorntwaite equation to

count the evapotranspiration. The total evaporation was 2356, 5 mm /year and evapotranspiration was 1333, 1 mm /year and actual evaporation was 1023, 4 mm /year, and there is not surplus water in the study area. A change in the annual water storage was zero, that is in total deficit water.

Key words: Water balance, Total evaporation, evapotranspiration Actual evaporation, water surplus, water deficit.

MEDICINE

Evaluation of the ability of T loop and bend back to achieve genuine intrusion during the acceleration of upper incisors intrusion movement using the Er: YAG laser

¹Thaer . A Ward, Azzam AL-jundi¹andAhmad Bourhan²

¹Department of Orthodontics, Faculty of Dentistry Albaath University

²Department of Orthodontics, Faculty of Damascus University

Abstract

The aim of the research is to evaluate the ability of T loop and bend back with Er: YAG laser to achieve genuine intrusion of upper incisors. A prospective randomized controlled clinical trial (RCT) was performed on 30 patients who need an intrusion of the upper incisor to manage deep bite cases. The sample were divided randomly into two groups: (A)15 patients (control group) with a mean age of (18.33) years, and (B) 15 patients (laser group) with a mean age of (18.53) years. Changes of the upper incisors were studied by lateral cephalograms. The lateral cephalograms were taken before treatment (T1) immediately after finishing the stage of leveling and alignment (T2) and after completion of the intrusion stage (T3).Results showed that T loop and bend back with Er: YAG laser were not adequate to achieve genuine intrusion.

Key words: deep bite, Er: YAG laser, T loop, genuine intrusion.

In vitro study to evaluate the effect of dentine thickness on thermal changes on external root surface during the use of several thermoplastic filling techniques

Hussam Ibrahim Alobaid and Hassan Alhalabia

Endodontics Department, College of Dentistry, Hama University, Hama
Hussamalabed@hama-univ.eud.s

Abstract

The aim of this study is to evaluate the effect of dentine thickness on the rise in temperature of the external surface of the root while using several thermoplastic filling techniques. The sample included 60 mandibular premolars. The teeth lengths were uniformed to 12mm after determining working length, and then shaped with Revo-s files #30. All roots were marked with two marks (the apex- and 5mm coronal to it) and temperatures were recorded using digital thermometer with probes. The samples was divided into 5 equal groups according to the obturation technique: thermoplastic obturation with EQ-V, thermoplastic obturation with HEROFILL, thermoplastic obturation with guttacondensor, vertical thermoplastic obturation, and lateral condensation as control group. The temperature changes were in opposite correlation with root dentine thicknesses. In conclusion, we should be careful while using thermoplastic filling techniques in teeth with thin dentine walls.

Key words: Thermoplastic obturation, temperature of the external root surface, dentine thickness.